



Apology for a weapon of mass destruction: the use of the metal detector in archaeology. Research and management experiences in the Alto Guadalquivir region¹

Apología de un arma de destrucción masiva: el uso del detector de metales en arqueología. Experiencias de investigación y gestión en el Alto Guadalquivir

El uso del detector de metales en varias experiencias desarrolladas en el ámbito del Alto Guadalquivir; en distintos contextos, pone de manifiesto su utilidad como herramienta específica dentro de los sistemas de recuperación y documentación del registro arqueológico. A través de los casos de análisis en el marco de una línea de investigación vinculada al estudio arqueológico de la Segunda Guerra Púnica, vemos cómo en un tipo de registro fundamentalmente 'metálico' como son los campos de batalla y asedios documentados en *Baecula*, Puente Tablas e *Iliturgi*, nuestra experiencia demuestra, no solo que no son herramientas que destruyen contextos, sino que son absolutamente necesarias precisamente por la peculiaridad de los mismos. Y no destruyen más que una excavación metódica. Por otra parte, en el ámbito de la Arqueología Preventiva, constatamos la necesidad de incluir esta herramienta precisamente para incorporar la localización de este tipo de sitios que siguiendo las pautas de la prospección arqueológica superficial serían indetectables. Es el caso del santuario ibérico del Haza del Rayo, en el que se han localizado multitud de evidencias 'metálicas' del mismo, se demuestra la necesidad de incorporación de esta herramienta al ámbito de la Arqueología Preventiva o a los estudios de Impacto Arqueológico.

Palabras clave: detección de metales, Arqueología del Conflicto, campos de batalla, Segunda Guerra Púnica, Arqueología de la Cultura Ibérica.

Experiences of the use of metal detectors in different contexts of the Alto Guadalquivir region highlight the utility of this tool in archaeology. The tests carried out in the framework of 'metallic' contexts of the Second Punic War battlefields and the sieges at *Baecula*, Puente Tablas and *Iliturgi* demonstrate that not only do metal detectors not damage or destroy the sites, but are absolutely necessary to this type of research. In addition, their levels of destruction do not surpass that of a methodical excavation. Moreover, experiences in rescue archaeology also corroborate the need to include this tool specifically to identify metal artefacts in contexts that remain concealed when applying the standard guidelines of archaeological surface surveys. The case of the Iberian sanctuary of El Haza del Rayo with its many 'metallic' artefacts serves to justify the use of this tool in both rescue archaeology and archaeological impact studies.

Keywords: Metal detecting, conflict archaeology, battlefields, Second Punic War, Iberian Culture archaeology.

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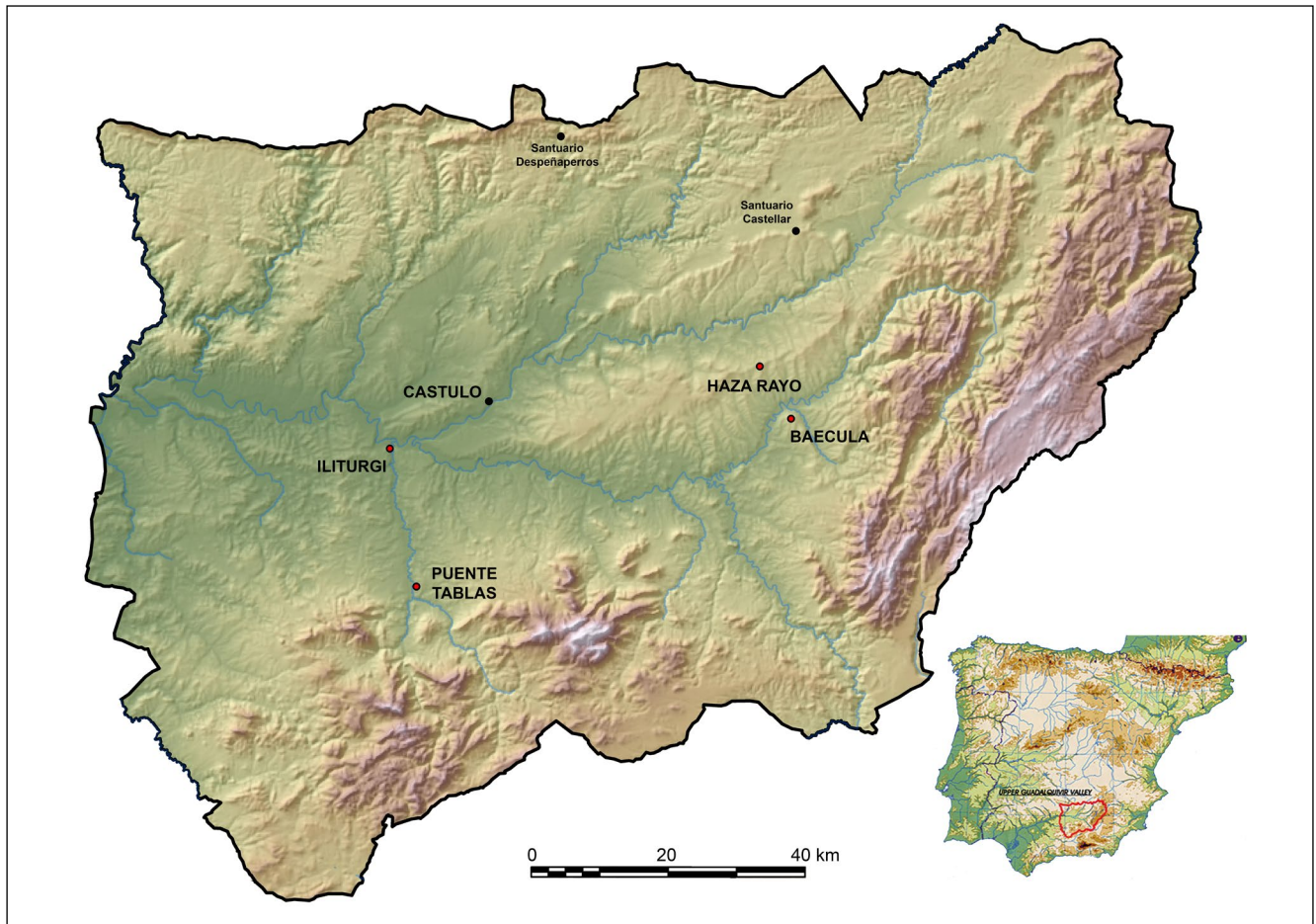


Figure 1. Location of the sites referred to in the text.

Introduction

We present various cases of archaeological analysis in which the metal detector was part of the technical and methodological array used for surface surveying. Three of them were part of a research project focusing on the archaeological study of battlefields and sieges during the Second Punic War: *Baecula*, *Iliturgi* and Puente Tablas (fig. 1). We discuss the relevance of metal detector use in the design of the methodological strategy for each case, which is necessarily integrated into a broader methodological system and combined with the data contributed by the historiography and the information gleaned from private collections amassed through plundering. In this case, we make a critical analysis of their reliability as indicators of the existence of battlefields and we discuss the transformation undergone by those contexts when they are erroneously interpreted as the result of concealment (hoards) rather than systematic collection over large areas of land.

Another model linked to a rescue intervention is an emergency excavation put into action when it becomes apparent that the area of the rescue excavation is being intensively plundered. In this case we are speaking of a recently documented late-4th and 3rd-century-BCE Iberian sanctuary (El Haza del

Rayo, Sabiote, Jaén) (fig. 1) that does not fit in with the known territorial models. At this site, not only is the methodological necessity of metal detector use demonstrated (the sanctuary preserves neither stratigraphy nor structures; neither of which existed originally), but it also underlines the need to use it in a different context to that of the investigation. Rescue archaeology, given its orientation, should incorporate this type of tool to define certain contexts in which assemblages of metallic finds—duly recovered and documented—serve to diagnose and define concrete sites with specific functions and to adopt the opportune corrective measures.

The reality of metal detector use is the following: it is employed with impunity by plunderers and clandestine excavators, who, even when they are caught red-handed, are only occasionally fined.² Moreover, fines are normally only imposed in the case of finds sold on the black market, leaving other archaeological sites and finds not included in those circuits unpro-

2. We must thank here the role of state security forces. Civil Guard (U.C.O. or SEPRONA) and National Police fight against this scourge for Heritage, both in the field and in the control of clandestine sales in well-known internet portals.

tected. This practice results in significant losses to the archaeological record and, now that we have tested its use on large areas of analysis, we understand the damage it can cause in certain contexts, especially at sites such as battlefields and sanctuaries.

Moreover, when information gleaned with a metal detector ends up being channelled or reincorporated into research, it becomes a challenge. This is clear to see in the analysis of find collections such as the Ricardo Marsal Monzón Archaeological Collection, which is now owned by the Andalusian Regional Government. In fact, from the study of some of its assemblages, an acritical context is extracted and the solidity of the 'lot' in terms of its origin is accepted, when there is no certainty or professional validity to support it. As we will see below, certain coin collections have been interpreted as 'hoards', when in reality they could have been individual finds collected over a large area (a battlefield). In other words, they are not concealed hoards with all their derived historiography when they are no more than accumulations and assemblages created fictitiously on the 'car bonnet' of the plunderers and clandestine excavators after they had pillaged a battlefield.

Our project defends the use of the metal detector in situations controlled by research teams and professional archaeologists. We have attested the existence of a type of surface (and sub-surface) archaeological record that defines and describes what until now have been very unusual or unknown contexts or, in any case, the elements of which have only been considered on a very small scale. The metal detector is just another tool (and not the only one) that can be used in an investigative process. In other words, we do not conceive of its exclusive use without other techniques and methods that give coherence to system of analysis. This is confirmation of the need for archaeologists to be in charge of its use (when, how, where and why?).

Finally, as F. Quesada (2008) already stated quite clearly, it is simply not sustainable to approach the archaeological investigation of battlefields without the metal detector, given the large surface areas involved and the impossibility of covering them with traditional methods such as excavation. Moreover, as has also been pointed out (Quesada 2008: 30; Ruiz *et al.* 2015: 630), the use of the detector is no more damaging than an archaeological excavation, if used correctly in a supervised methodological framework. In Spain, reflections focusing on the use of the detector in an integrated methodological framework are thin on the ground, even exceptional (Noguera *et al.* 2015).

The first trial: *Baecula*, a battlefield of more than 600 hectares (in its central area)

This site is an elevation covering more than 1500 hectares overlooking the fertile plain of the River Guadalquivir and visually dominating a large part of the river valley. For more than 15 years now it has been the subject of a research project focusing on the archaeological analysis of the battle scene of

Baecula. In this clash, the troops of the Carthaginian general Hasdrubal Barca fought those of the Roman general Scipio Africanus in the year 208 BCE in the context of the Second Punic War on the Iberian Peninsula (Polybius, X 38, 7 to 40 and Titus Livius XXVII 18, 10 and 11). Initially we can refer to the monograph published on this Second Punic War battlefield (Bellón *et al.* 2015b), as well as more recent studies focusing on specific aspects, such as the camp areas (Bellón *et al.* 2016), or specific methodologies, including Geographical Information Systems (GIS) applied to archaeology (Bellón *et al.* 2017). Here we extract the most concrete aspects linked to the integrated use of the metal detector in the construction of our methodology in the whole research process. In the case of *Baecula*, in addition to the metal detector, we used test trenches, geophysical surveying, surface surveying, the analysis of historical aerial photography and, of course, the classical sources and the historiography of the battle itself.

We would like to point out that, in our opinion, 'battlefield archaeology' or 'conflict archaeology' not only contributes knowledge relating to its own line of research, but also enriches traditional fieldwork studies of settlement patterns or systems in any historical analytical process. A good example of this is Cerro de las Albahacas, the site at which the battlefield of *Baecula* has been located. In the early 1980s, a research team announced the first reports of several archaeological sites on the summit of the hill that were difficult to fit in with the types of settlement known for the Iberian period (López Rozas *et al.*, 1993a; 1993b; Ruiz 1978; Ruiz and Molinos 1993). Indeed, it was not an *oppidum* (there was no evidence of a fortification), but its hilltop position was far from the parameters of the unfortified sites on the plains. Furthermore, the extent of the finds dispersion suggested a considerable size, meaning that once again the site(s) failed to fit in with the known patterns. With the information available following its study, we can now introduce new variables into the recognition of historical landscapes and their configuration in which the 'short time', the event, also leaves a recognisable archaeological footprint as compared to the traditional 'long time' analysis. This is also a factor from the heritage management perspective, given its unusual characteristics in which we can and must assume that the metal finds would be precisely the only materiality that would have generated its original archaeological record.

The first step in the *Baecula* Project focused precisely on the localisation of the battlefield. A selective archaeological surveying strategy was designed based on three fundamental elements: a) the configuration of the battle scene, the elements described by the classical sources (camps, troop movements, etc.); b), their topographic description (the situation of the camps, the battlefield structure, the location of specific elements such as rivers, terraces, steep areas, etc.); and finally, c) the use of the selective metal detector samplings as a another tool in the system, albeit an important one, for approaching a critical factor in this case: the localisation of *militaria* associable with a Second Punic War conflict.

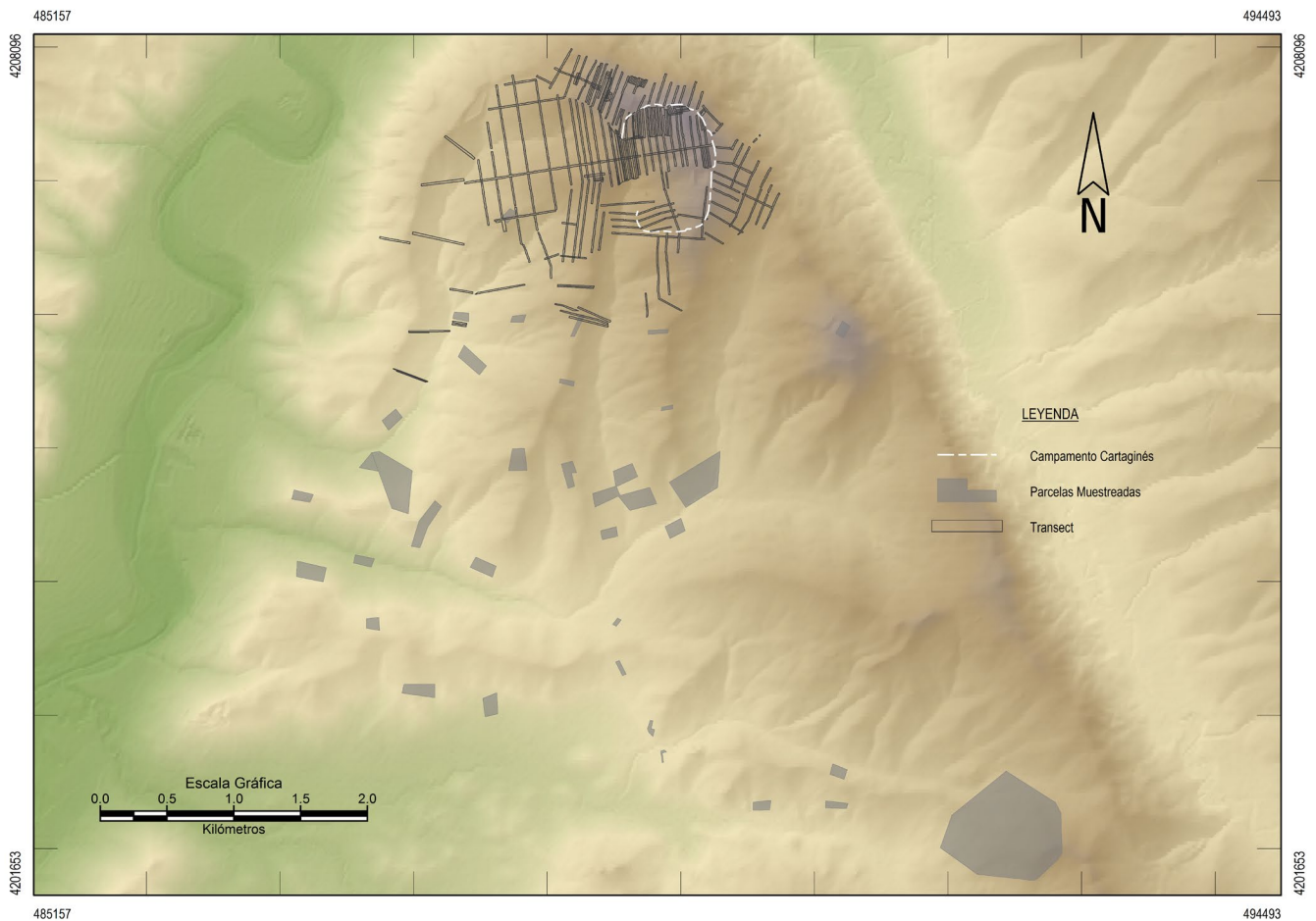


Figure 2. Design of the sampling in the battlefield of *Baecula* (Santo Tomé, Jaén).

Archaeological surveying methodology: sampling with the metal detector

As stated above, the sampling system chosen to investigate the battle scene consisted of the progressive implementation of a system of transects adapted to the olive groves that are the predominant agriculture on Cerro de las Albahacas. The transects followed two basic objectives:

- a) To demarcate the size of the battlefield, the area in which the armies faced each other and clashed. This is the zone in which the materiality of the record is most abundant. However, it is only part of the scene, which also encompasses the troop movement zones, the positioning in camps and other elements that were involved, including the *oppidum* of *Baecula* itself. While the area of the clash covered some 600 hectares, the rest of the scene could have involved more than 6000 hectares in a restricted zone that does not include the area through which the Carthaginian army fled.
- b) To analyse, through a microsurvey of the area of the clash, the dispersion of all the elements linked to the battle, the types and associations of which could indicate the positions of certain army corps, areas of troop movement (*clavi caligares*), encampment zones, etc.

The structure of the battlefield sampling corresponds to these criteria, following a more or less systematic coverage of the whole area of engagement and, on the other hand, the play between a more directed and selective sampling aimed at validating, comparing and questioning the information on the battle of *Baecula* contained in the classical sources.

This design and methodological strategy is reflected in Figure 2, in which it is necessary to emphasise the greater intensity of sampling in the camp zones on the summit of Cerro de las Albahacas (where there were two camps). This is due to the greater frequency of finds resulting from erosion and the intensity of the conflict that took place in them (the remains of the camps overlap with those of the battle itself). Furthermore, from a preventive point of view, this is the area most exposed to pillaging, and the methodology needed to include a strategy of en masse recording of elements that are at risk of being lost to both our research and our collective cultural heritage.

The samplings, transects and units (grids) were adapted to the layout of the olive groves, thus considerably facilitating their design and execution. Each grid was subjected to a systematic and intensive sweep with a single metal detector (to avoid noise and distortion) following a more or less set protocol. Firstly, the points where the detector had indicated



Figure 3. The process of recording the finds made in the field.

the presence of metal (ferrous and non-ferrous: bronze, silver and gold) were marked; secondly, the same detection team or a second team carried out the search of the points located. Finally, in the GPS recording and inventorying phase, it was determined which items would be included in the database and which would be rejected and excluded, although accounted for (fig. 3).

The finds reflect the palimpsest-like nature of the archaeological reality of the site, with different occupational phases, some of them as sporadic as the battle itself. Among these we can include such examples as a lost medieval coin not associated with any type of site or settlement recognised in the survey. However, they also reflect the impact of the plundering suffered by the site. The finds are mainly of iron objects, with relatively few bronze items and an almost complete absence of more valuable metals, such as silver or gold. This is due precisely to the way clandestine detectorists plunder the archaeological record by setting their detectors to ignore objects that cannot be sold (e.g. iron), but that are decisive for archaeological research.

With regard to our experience in the use of the metal detector (in *Baecula*, *Iliturgi*, Puente Tablas, *Numistro* and *Metauro* in Italy), we consider that despite the suspicions its use may arouse (Martín-Bueno 2008: 10), it is a tool without which we would not be able to investigate contexts of this size and with such unusual conditions as the absence of stratigraphy (in the case of the camp zones it cannot be considered as such). As we pointed out in 2015 (Bellón *et al.* 2015a), there is evidence for this:

1. The use of the detector is as destructive to the stratigraphy (if there is any) as an excavation. If this tool is supervised by archaeologists who are able to determine and observe the evidence of its action in the area of a micro-excavation, there is no risk. We can state that in the more than 60 hectares sampled (up to 2014), in only one case was the existence of a very superficial stratigraphy detected and that was considerably affected by erosion; in that case use of the sampling system was suspended in the area.

2. The detector has a limited range of action. It is conditioned by the metallographic composition and size of the find and the dampness of the ground. However, the most important fact is that it works best (95% frequency) between the surface and a depth of 20-25 cm, a range affected by ploughing, and therefore poses no threat to potential consolidated or unaltered stratigraphy. Cases in which objects are found at depths of more than 25 cm are exceptional and also linked to more recent finds by their size and composition. We have never found a bronze coin (for example, the frequent Hispano-Carthaginian examples) at a depth of more than 20 cm.

3. Most of the finds are fragmented parts of weapons, *impedimenta* or other items that have remained lost on the battlefield, precisely because of their size and undefined shape. They make up the majority of the record and it is difficult to determine their function and chronology and whether or not they are linked to the battle itself (for example, small fragments of iron arrowheads). Disassociating them or discerning whether or not they belong to the battle context is a complicated task, especially when they are types that



Figure 4. Metal objects documented in the survey campaign in the Metauro Valley (Fossombrone, Italy).

were in use over a long period with little variation in their shape (for example, nails or other more specific elements, such as types of iron arrowhead). Finds of whole, large items (for example, the Talamonaccio-type *pilum*) are exceptional and in any case reflect the aforementioned plundering of the site or the cleaning up after the battle itself by the victors. In summary, the interpretation and the reading of the context is made on the basis of 'shrapnel' remains that were not removed from the battlefield.

4. Debris. More than ten archaeological campaigns in the area have demonstrated the pollution of our landscape; it is the archaeological evidence of the recent use of these areas that can impact on the detection process by interfering with the detection of earlier nearby elements. Moreover, both their localisation and their documentation involve a notable investment in work and time, which hinders the effectiveness of the samplings. Highly contaminated areas (or those with a very high frequency of recent metallic remains, such as wire, nails, etc.) are exasperating and affect the quality of the survey (fig. 4).

Returning to the complexity of the aforementioned 'lack of stratigraphy' of the site, at Cerro de las Albahacas we have attested the wealth of information contributed by an intensive sampling of an open area, a field, whether or not it is a battle site. The

site or the zone has been occupied since prehistoric times (at least the Neolithic). We can identify large occupied areas from that phase thanks to the surface indicators, as well as to test trenches dug at certain points. On the other hand, once again we would like to insist on the need to use metal detectors (for surface or sub-surface geomagnetic surveying) as part of the overall methodological strategy.

In fact, we have located at least three entities, possibly small settlements in the sampled zone (fig. 5). Two of them are occupations from the 2nd and 1st centuries BCE that are characterised by the presence of coinage from the Cástulo mint; the other is a small Roman imperial-period *villa* located on the western side of the summit of Cerro de las Albahacas. In that area, two clear metallic features have been found: coinage and the remains of lead. However, it is the use of the metal detector for surveying with the collection of surface finds (pottery, stonework, building remains, etc.) that allows us to interpret and delimit its surface dispersion and the size of the sites. Furthermore, it indicates to us that the possible remains of the battle overlap or coexist with each of the stratigraphic situations of at least these three sites.

The overall dispersion of the finds, both the metallic and the non-metallic evidence, the test trenches and the geophysical prospections, added to the

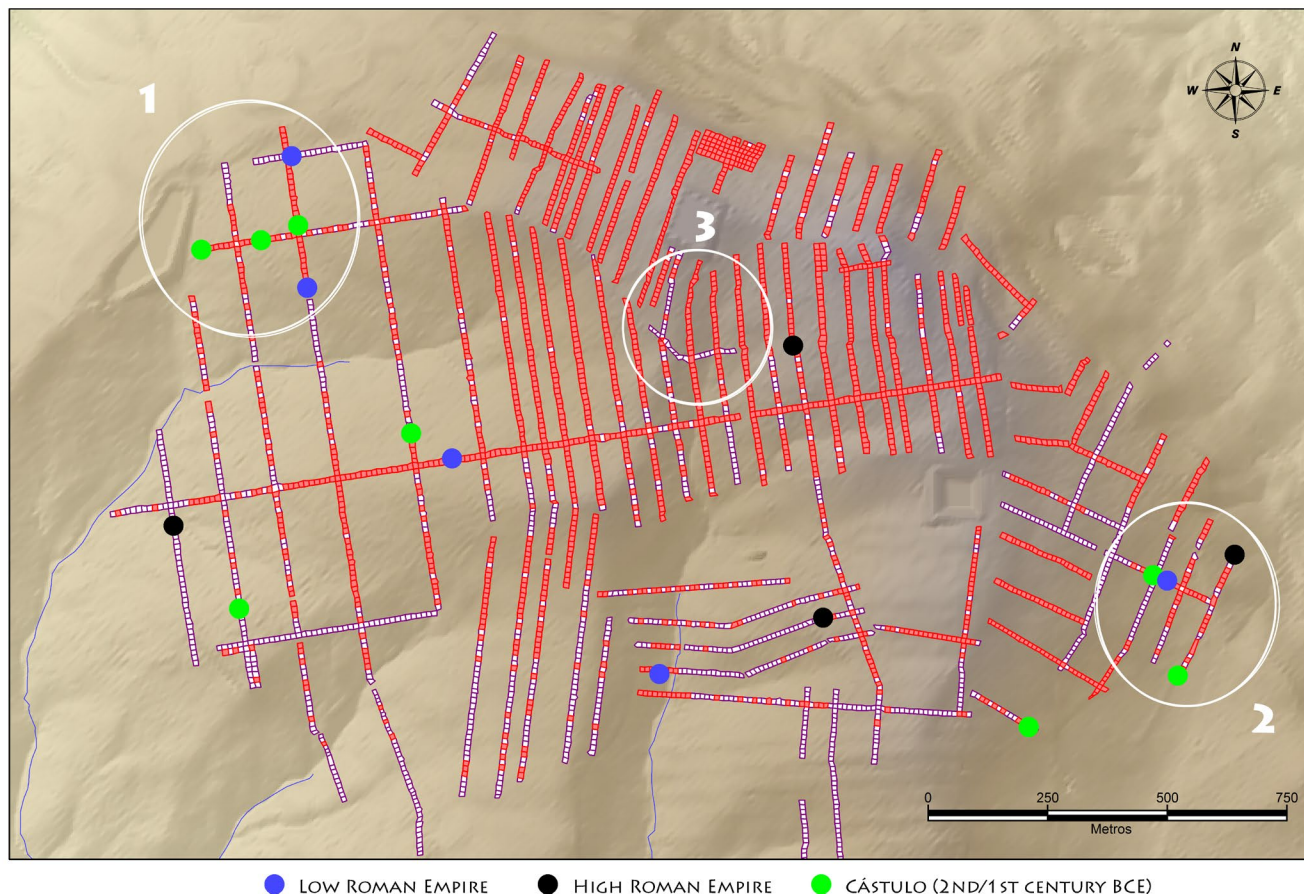


Figure 5. Areas with dispersion of finds subsequent to the Battle of *Baecula*. 1 and 2, late-period Iberian settlements (2nd-1st centuries BCE); 3. Early Roman villa.

corroboration of the occupation of the Cerro de las Albahacas area since the Neolithic. In the context of the Second Punic War, the proximity to an *oppidum* of considerable size (*Baecula* of more than 15 hectares that gave its name to the battle) from which it was no more than 3 km away, leads us to believe that that this was an open exploited area (farming, stockbreeding, etc.) with a dense vegetation or one that would have impeded the deployment of troops and their access to the summit of the hill, where the camps were set up.

The lack of stratification of one of the most decisive components of the battlefield does not mean we are unable to reconstruct a context based on the reading of its dispersion or spatial distribution. And this is a key factor. The georeferencing of the finds and their recording in a Geographic Information System (GIS) allows us to create a database that gives coherence to their spatial distribution. There are only two clear examples, out of so many possible ones, of a well-defined archaeological context in an unstratified environment (which is most of them, except for the camp zones):

- the dispersion of *clavi caligares* has allowed us to follow the in footsteps of the Roman troop movements, in addition to locating the area in which the Roman army formed up to attack the

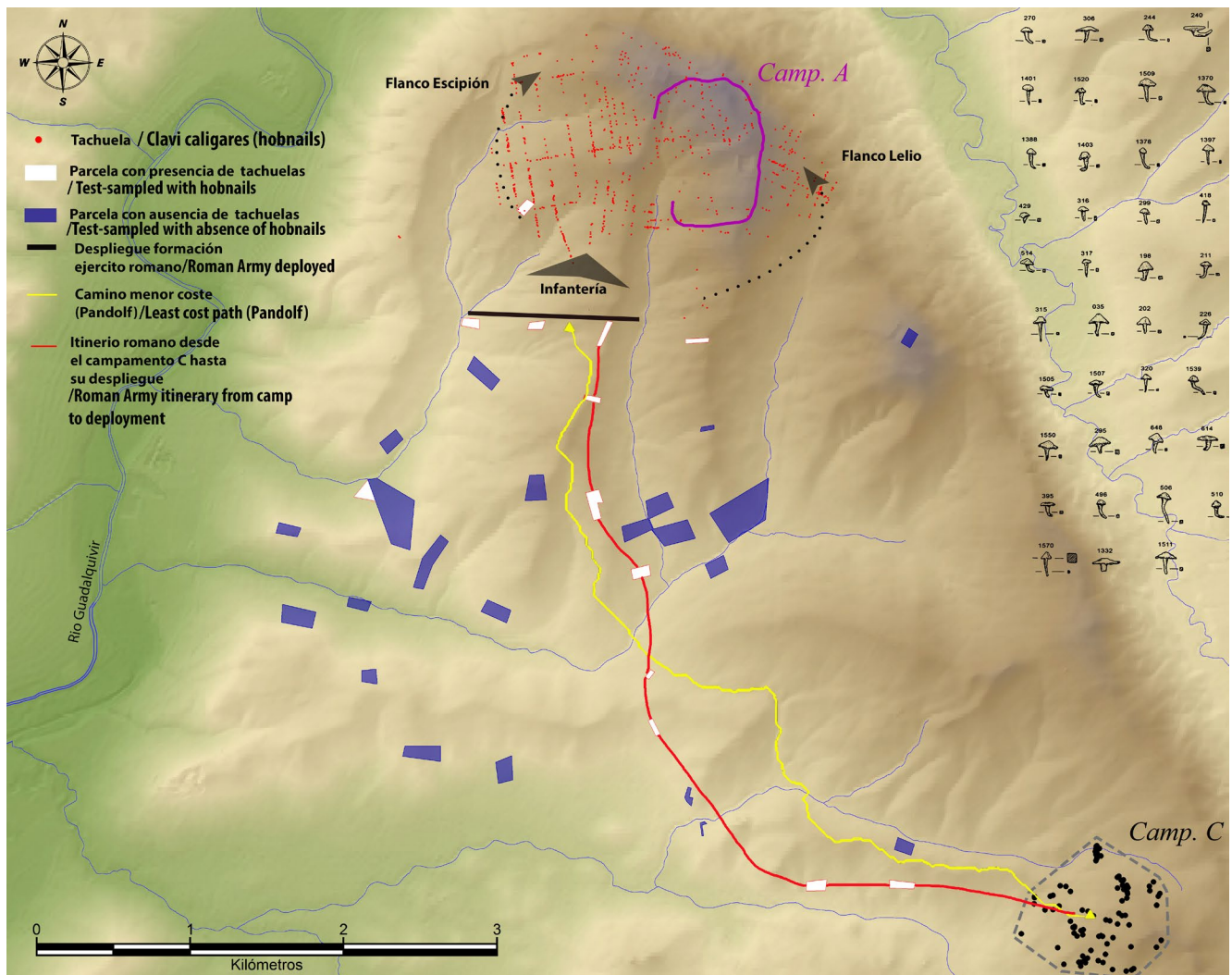
Carthaginian camp or, following their footsteps in reverse, to locate the Roman camp from which the army set out (fig. 6)

- the dispersion of lead sling bullets allows us to reconstruct the movement of a type of troops specialising in launching that type of projectile, which was limited to body to body combat.

As a consequence, anything that affects the situation of any of the shrapnel fragments from this battle alters the interpretation of the whole. Such an action would result in a real loss of archaeological context.

Situation zero, the abandonment of a battlefield would be made up of organic and human remains and basically metal. Moreover, in the cleaning up that would have taken place after the battle, both the organic and the human remains (if they were not taken to common graves) would have lain there exposed to the elements and would not therefore have been preserved. Only the metal, those small lost fragments that were not taken as booty or as part of the denial inherent in a war and subsistence economy, would be the items preserved from that initial situation. As a consequence, the materiality of certain archaeological contexts —ancient battlefields— is mainly metallic and its interpretation is complex.

The process of locating the battlefield took two years of sampling in zones that met the requirements

Figure 6. Dispersion of *clavi caligares* on the battlefield of *Baecula*.

of our orientations, but that provided no positive results. After finding the first evidence at Cerro de las Albahacas, the survey team celebrated their success in a bar in the locality of Santo Tomás. The bar owner overheard the conversation and told us that 'the site was Carthaginian' and that many things had been taken from it and sold or exchanged in his bar (a fact that led him to buy a metal detector and to learn how to use it). He told us that the site had been plundered for months by a large group of people. Years later, we assume that only a part of that plunder is now in the Andalusian Regional Government's Ricardo Marsal Monzón Collection and needless to say completely without context.

Sieges. Distinguishing the day-to-day from the possible: *Iliturgi* (Mengíbar) and Puente Tablas (Jaén)

Two recent analyses undertaken in the *oppida* of *Iliturgi* and Puente Tablas serve as a model of

methodological comparison with what we have revealed above. *Baecula* is (was) indeed a battlefield and we believe that it combines a series of characteristics inherent to that conceptual and circumstantial framework. In contrast, the cases of *Iliturgi* and Puente Tablas involve sieges or assaults by an army on a town. In these we can propose an initial hypothesis that both their configuration and the finds to be expected in the archaeological record can reveal differences with respect to the former examples.

What we would like to highlight in this small section is that, despite the fact that the methodology applied at both sites is similar to that proposed for *Baecula*, we are operating within a specific framework in the immediate surroundings of a settlement. This means an area that may contain structures, remains or stratigraphy on its periphery and in which items lost in normal day-to-day life could overlap with those resulting from a siege or an assault.

Iliturgi: documenting the footprint of (at least) three sieges within a space of ten years

Traditionally believed to have been at Cerro Maquiz, our research has managed to demonstrate that it was actually located in a large fortified settlement —an *oppidum*— barely 400 m from Cerro Maquiz at Cerro de la Muela (Bellón *et al.* 2017). Also in this case, thanks to the combination of magnetic prospection (metal detecting), archaeological surface surveying, geophysical surveying and excavation with test trenches, we have determined that the town was subjected to a siege towards the end of the Second Punic War. According to the material evidence and its comparison with the classical sources, we can date this to around 207-206 BCE. Titus Livius tells us that the siege of *Iliturgi* led to the total destruction of the town as a punishment for having betrayed Rome in an earlier episode around 212 BCE. However, before it came to a dramatic end (which should be reflected in its abandonment context), the *oppidum* had previously participated in various conflict scenarios of the Second Punic War, a factor that would have determined a sequence of events that is difficult to discern over the course of a single decade.

- In 215 BCE, the (pro-Roman) town was besieged by different Carthaginian armies. An action commanded by the Scipios freed the town from the siege. Three Carthaginian camps are mentioned, to which we have to add an undetermined number of Roman camps (Liv. XXIII 49, 5 to 12).
- In 214 BCE, a Roman garrison was besieged by two Carthaginian armies. Once again, an action by the Scipios freed the garrison and brought supplies to the town. The sources cite two Carthaginian camps, the Roman garrison (in the town?) and we also have to take into account an undetermined number of one or two Roman camps (Liv. XXIV 41, 8 a 11).
- In 206 BCE, *Iliturgi* was besieged and razed, a destruction justified by its treachery following the deaths of Gnaeus and Publius Scipio in 212 BCE, when the town refused to defend and provide sanctuary for the remaining Roman troops following the disastrous battle (Liv. XXVIII 19, 2). Although none are explicitly mentioned, there must have been at least one Roman camp related to the siege. Livy mentioned the presence in the town of Carthaginian troops, who subsequently regrouped in Cástulo (Liv. XXVIII 19 and 20).

From the reading of the sources, we deduce that there were several camps and garrisons and various assaults and sieges on the town that ended in its destruction in 206 BCE. This panorama is complicated from the perspective of the archaeological record in which we circumvent the episode of 195 BCE (Liv. XXXIV 10 1 and 2) in which Livy describes the Celtiberian uprising that was crushed in the vicinity by Marcus Helvius, an event that other authors place in the River Ebro valley (Noguera *et al.* 2014).

The sequence at Cerro de la Muela covers the 6th to the 3rd centuries BCE. In comparison, Cerro Maquiz

reveals greater complexity, with a possible occupation during the 8th and 7th centuries and a reoccupation between the 2nd century BCE and at least the 6th century CE, with later, more restricted elements, such as Muslim towers from the 12th and 13th centuries. Therefore, we understand that its complementarity corresponds to a single historical reality: *Iliturgi*.

The sampling system has allowed us to locate traces of the last siege (fig. 7) and to assess, as at *Baecula*, the percentage and type of items recorded over a surface area of 8.7 hectares, the periphery of which has been considerably altered by housing developments, infrastructure and other elements. Of the total number of metallic items found (7793), 80% (6213) can be categorised as recent rubbish and 18% (1430) has been recorded and collected for analysis, although most of the items are included as UNME (Unidentified Non-Metallic Elements). In contrast, only 2% (150) can be linked with certainty to the Second Punic War conflict and their correlation with the *corpus* of finds from *Baecula* is symptomatic.

In Figure 7 we can see how the sampling design takes the form a halo around the fortification on the highest part of the *oppidum* and only some of the transects cross the settlement. Here we were able to see the interconnection between the surface and sub-surface remains, the geophysical surveying and the test trenches for corroborating and comparing the actions of the metal detector in the interior of a settlement where we already knew of the existence of stratigraphy, structures, etc. The result is obvious (fig. 8): the detector does not affect the archaeological levels documented subsequently in an excavation. Its application allows us to attest the existence of surface indicators from the abandonment phase (the siege) that we can also see on the floors of the domestic units and in the streets of the settlement.

On the other hand, the study of the finds from outside the fortification indicates a low frequency of items linked to the settlement itself (symptomatic here are the lead weights used on river fishing nets). In any case, the problem could be linked to elements that could be characterised as local rather than exogenous. Their analysis and insertion into the interpretation of the event —the siege of the town in this case— should be based on a prior recognition of the known local types with a broader chronological frequency, compared to the exceptional items; their presence is justifiable in the context of the Second Punic War and they are significant for contributing information relevant to the interpretation of the conflict.

And yes, it is possible to distinguish between the assemblages of finds from *Baecula* (battlefield) and those documented at *Iliturgi* (siege). There are certain types of finds that are not found at *Baecula* (*pila catapultaria*) that indicate the presence of Roman artillery or types of lead sling bullets. The typology, modules and mineral origin of the latter distinguish them from the *Baecula* finds and they can probably be linked to the siege of the fortification.

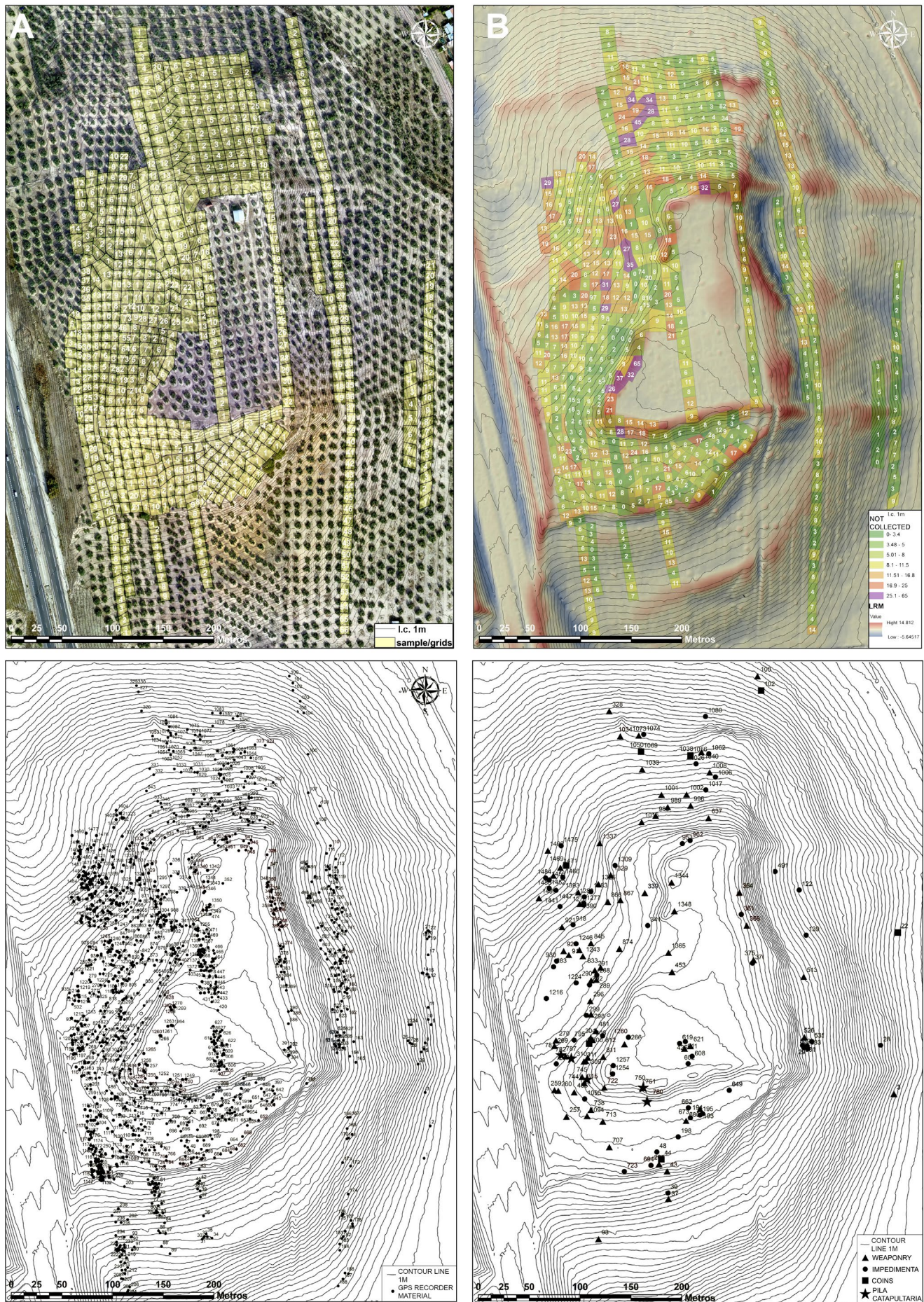


Figure 7. Cerro de la Muela-Iliturgi (Mengíbar, Jaén). A. Sampling proposal; B. Density of uncollected metal items; C. Location of the full assemblage from the record; D. Metal items linked to the siege of 206 BCE.

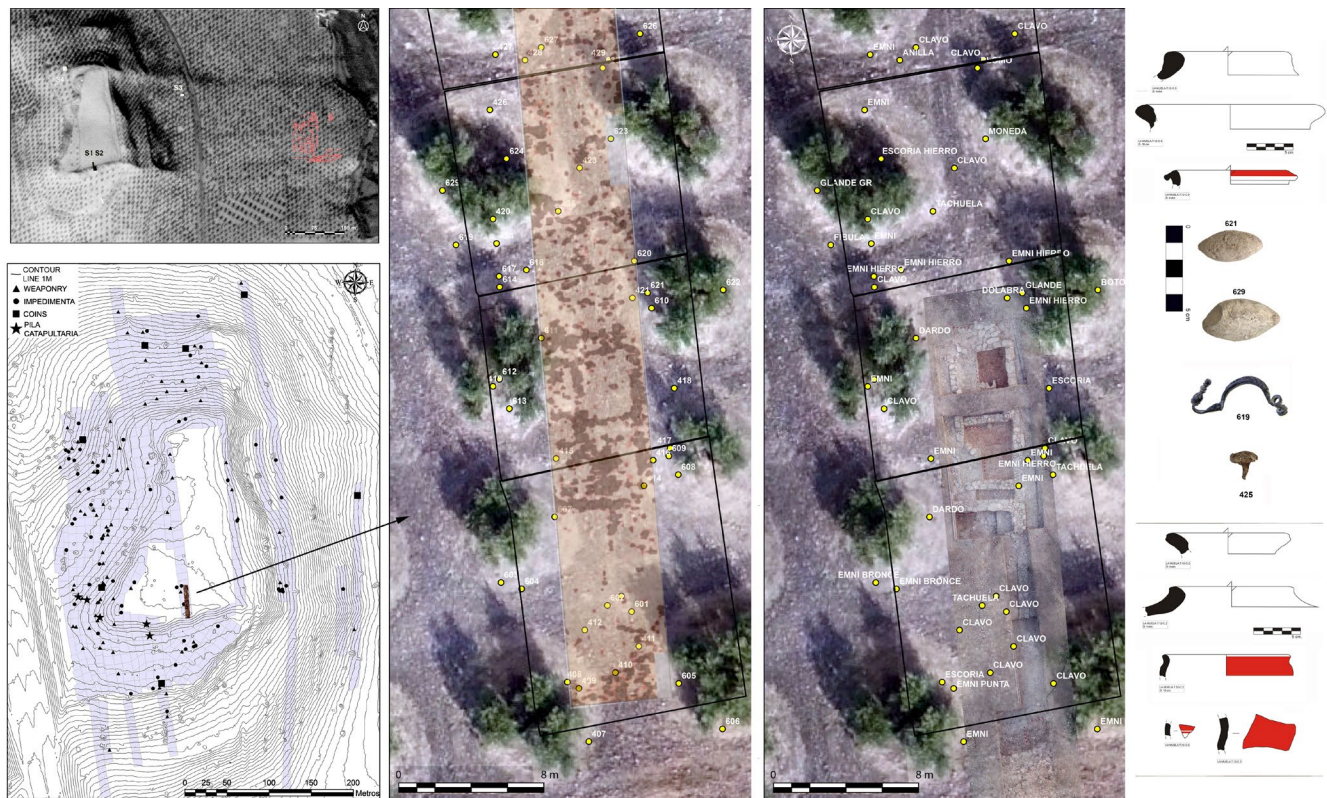


Figure 8. Sampling with metal detector inside the *oppidum* of Cerro de la Muela-Iliturgi. Interaction between geophysical surveying, surface surveying and archaeological excavation.

Puente Tablas: overcoming the anonymity in the classical sources

In the first two cases mentioned above our initial proposal was based on comparing the archaeology with the classical sources. However, in the case of Puente Tablas (Jaén), a well-studied Iberian *oppidum* of some five hectares subjected to successive excavation campaigns (Molinos 2015; Ruiz *et al.* 2015) in which the occupational sequence ends in the late 3rd century BCE, the absence of any references to it in the sources and the fact that it has not been linked to any specific ancient toponym, differentiates it when it comes to approaching its analysis.

In the context of a specific incident of plundering on the periphery of the northern gate of the *oppidum*, we were able to attest the evidence of an assault (Quesada 2007) concentrated in that specific area (Lechuga *et al.* 2019). The design of the surveying system attested this by confirming the practical non-existence of evidence in the rest of the fortified perimeter of the *oppidum* (fig. 9)

Like Cerro de la Muela-Iliturgi, Puente Tablas yielded a fairly homogenous *corpus* of finds in terms of their association with the final period of the settlement's occupation. While it is true that in both cases there are elements from daily life that reveal a broad chronology, it is also true that the cases are exceptional. In summary, it is probably the superficial stratigraphy 'affected' by the use of the metal detector that shows us elements from the final sequence of both cases: the siege of Iliturgi and the assault of Puente Tablas.

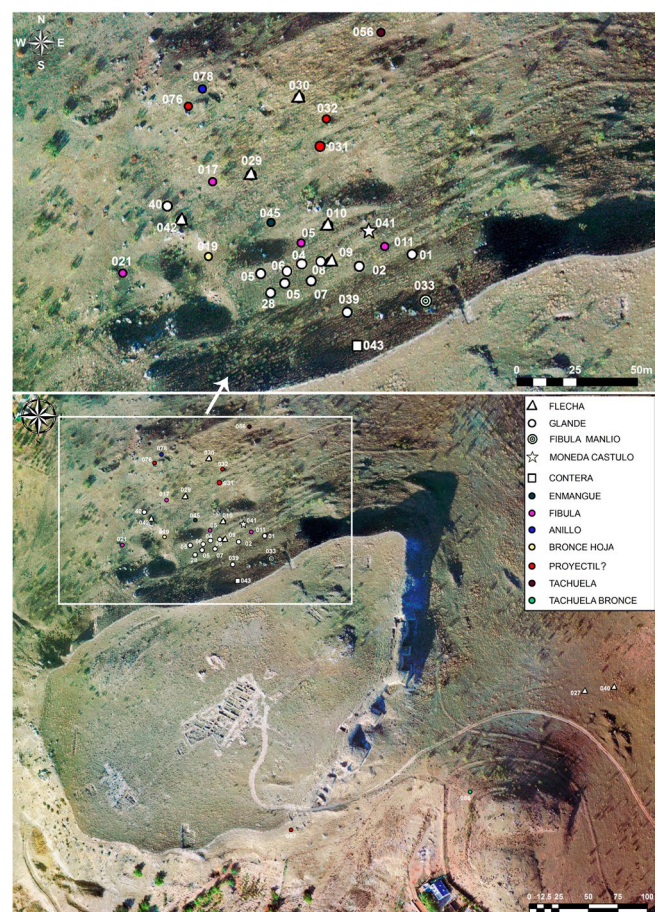


Figure 9. Puente Tablas (Jaén). Evidence of the assault on the north gate of the *oppidum* at the end of the Second Punic War.

However, what we are most interested in highlighting in this case is how the methodological equipment functioned and how it will allow us to undertake a regional analysis (Alto Guadalquivir) of the Second Punic War, using archaeological methodology, without the need to depend on the aforementioned classical sources, as in the cases of *Iliturgi* or *Baecula*.

Feedback. Collections and plundering. Their impact and the biased (almost useless) information transmitted to archaeological research

The Ricardo Marsal Monzón Archaeological Collection became part of the Andalusian Historic Heritage in 2005. Consisting of more than 100,000 archaeological items, almost all from Andalusia, it is one of the largest archaeological collections known to date. It comprises 2,864 assemblages known as “lots” (purchased from different plunderers) accumulated between the 1980s and 1999. It should be emphasised that more than half of the objects that make up the RMMAC are coins: 62,489 out of a total of 106,858 items (Ojeda 2014).

If we focus on the province of Jaén, one of the areas most affected by plundering, in this collection we find 20,067 objects organised into 648 assemblages-lots, mainly coins (11,417 pieces). Of particular note are 149 ‘grave goods’ and 22 ‘hoards’. They are attributed to 88 specific places of origin in 36 municipalities (Aguilera 2014). This information comes from the notes the clandestine detectorists attached to the “lots” they themselves put together for sale to Ricardo Marsal. Therefore, the way this collection was made up, with plundered objects mainly found with metal detectors and selected in keeping with the preferences of the black market, is a major determining factor that skews the possibility of obtaining useful archaeological information from the ‘lots’. To the obvious absence of archaeological sequences with which to contextualise these objects, we have to add the attraction for certain types of finds chosen for their good state of preservation, as can be seen in the largest part of the collection that consists of metal objects, particularly coins and weapons.

An interesting analytical case to illustrate this proposal is Cerro de las Albahacas-*Baecula* (Santo Tomé, Jaén), which is identified in more than twenty lots of the collection as Cerro del Manantial). A large number of items from that site are found in the RMMAC, the result of intensive plundering carried out prior to the scientific work of our research project. The comparison of the results of the two actions allows us to observe that during the plundering, the best represented group of finds is that of coins (210 pieces), followed by Tène-type fibulas (19), to which we can add three more fibulas of a different typology. The third largest group is that of bronze ex-votos (13 examples). The fourth group consists of Macalón-type arrowheads (7), although two more groups of arrowheads of other typologies add another five to their number. There are two more groups made up of lead slingshot bullets or projectiles (3) and another of rings (also 3). In total, there are 263 items divided into nine groups (Ruiz 2014).

In addition to this distribution of find types, the archaeological research of the *Baecula* Project has identified another eighteen groups to add to the previous nine. However, the most interesting factor is not only the variety of objects, but also percentages of their distribution: despite having studied the site after the clandestine operators had removed their booty, the *Baecula* Project recorded 58 coins. This indicator has been knocked off the top spot of the finds table by two groups that are not documented in the RMMAC, both made of iron: hobnails (*clavi caligares*) from Roman legionaries’ sandals (773) and fusiform or bipyramidal darts or arrowheads (139). The La Tène fibulas make up the following group of finds with 44 examples. All this shows that the plunderers were selective in what they took. They ignored hobnails and darts, as well as other finds they considered less important or because they were broken, such as speartips, javelins, *pila*, ferrules, spurs, sword sheath tip fragments, daggers and tinder lighters that had no value on the collectors’ market. In contrast no bronze ex-votos have been found by the *Baecula* Project (Ruiz 2014) (fig. 10).

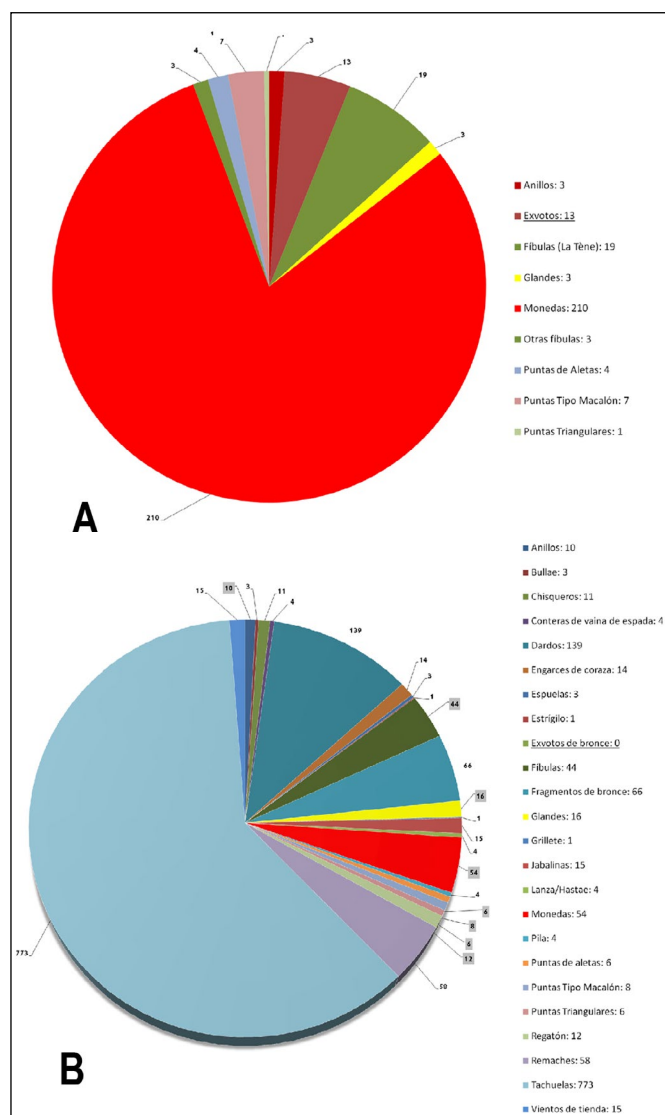


Figure 10. Comparative diagram of finds. A. Ricardo Marsal Collection with finds from Cerro de la Manantial (= Cerro Albahacas); B. Found on the battlefield of Cerro de las Albahacas-*Baecula* as part of our research project (up to 2010).

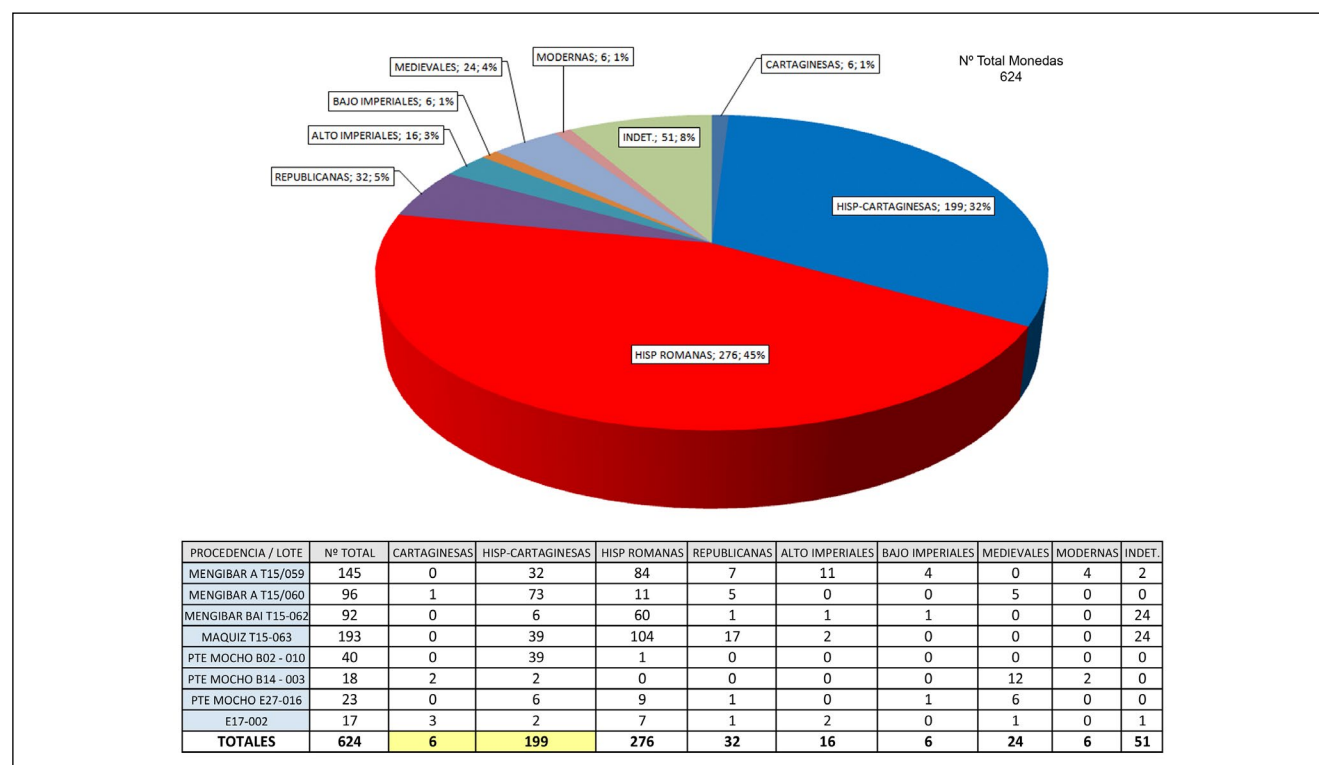


Figure 11. Distribution of coins in the RMMAC lots (Andalusian Regional Government). It is possible to see the 'weight' of the Hispano-Carthaginian coins in the assemblages associated with the municipality of Mengíbar (Jaén).

Another even more eloquent analysed case consists of the finds from the municipality of Mengíbar, where, since 2015, we have been carrying out a general research project based on the archaeological analysis of the *oppidum* of *Iliturgi* (Lechuga *et al.* 2015). The finds assemblage—consisting of nearly 30 lots and more than 1300 archaeological objects—stands out for the abundance of metal objects, which account for almost 80% of the total, including 624 coins. Associated with all the lots of coins are brief descriptions or sketches giving a general idea of where they were found and, to a certain extent, designed to justify their market value. The analysis of these lots has allowed us to identify at least seven different locations. They include Cerro Maquiz, identified in the plunderers' notes as "*ibero romano*"; the necropolis of Los Chorrillos, Cameros or *Mengíbar D*, barely 2 km to the east of Cerro Maquiz; Cerro de la Muela (*Mengíbar Púnico*, according to the clandestine plunderers' sketch); and Puente Mocho, located roughly in the area of the Las Infantas district. There are references to another two sites, although in this case they are less precise and make it difficult to pinpoint their exact location, at least for now.

Of all the finds, we can highlight eight lots made up exclusively of coins; they are almost all bronze, as silver coins were normally placed individually or in small groups. This can be seen in lots such as B14-013, which consists of two silver Hispano-Carthaginian shekels and a half shekel. The eight lots consisting only of coins of diverse chronologies have one characteristic in common: the abundance of Hispano-Carthaginian coins from the late 3rd century BCE (fig. 11).

We can identify the two lots classified according to the accompanying sketch as coming from *Mengíbar A*, *Mengíbar Púnico* or *Necrópolis Púnica* (T15-059 and T15-060) as originating at Cerro de la Muela. They consist of 241 coins of diverse chronologies, all made of bronze. The largest group is that of Hispano-Carthaginian coins with a total of 106 pieces, mainly concentrated in Lot T15-060 (74 coins). The following group in chronological terms consists largely of Hispano-Roman coins (95), with only a few belonging to other phases: Roman Republican (12), early imperial (11), late imperial (4) and mediaeval (5). Another lot (T15-063) is linked to the same site, Cerro de la Muela, and consists solely of lead objects, including 41 sling bullets or projectiles (fig. 12).

As indicated in the previous section, as part of the "*Iliturgi: Conflict, Worship and Territory*" General Research Project, since 2015 we have been undertaking a systematic investigation focusing on the archaeological analysis of the Second Punic War conflict episodes in the area of the *oppidum* of *Iliturgi*. We have used such non-invasive techniques as photointerpretation, micro-topographic study, geophysical surveying and micro-archaeological surveying using metal detectors and GPS georeferencing (Bellón *et al.* 2017). With this methodology we have been able to create a *corpus* of data managed through a Geographic Information System that has allowed us to identify present-day Cerro de la Muela as the site of the ancient *oppidum* of *Iliturgi*.

To date, our investigation has allowed us to identify more than a dozen categories of finds related to the siege: Hispano-Carthaginian and Roman coins

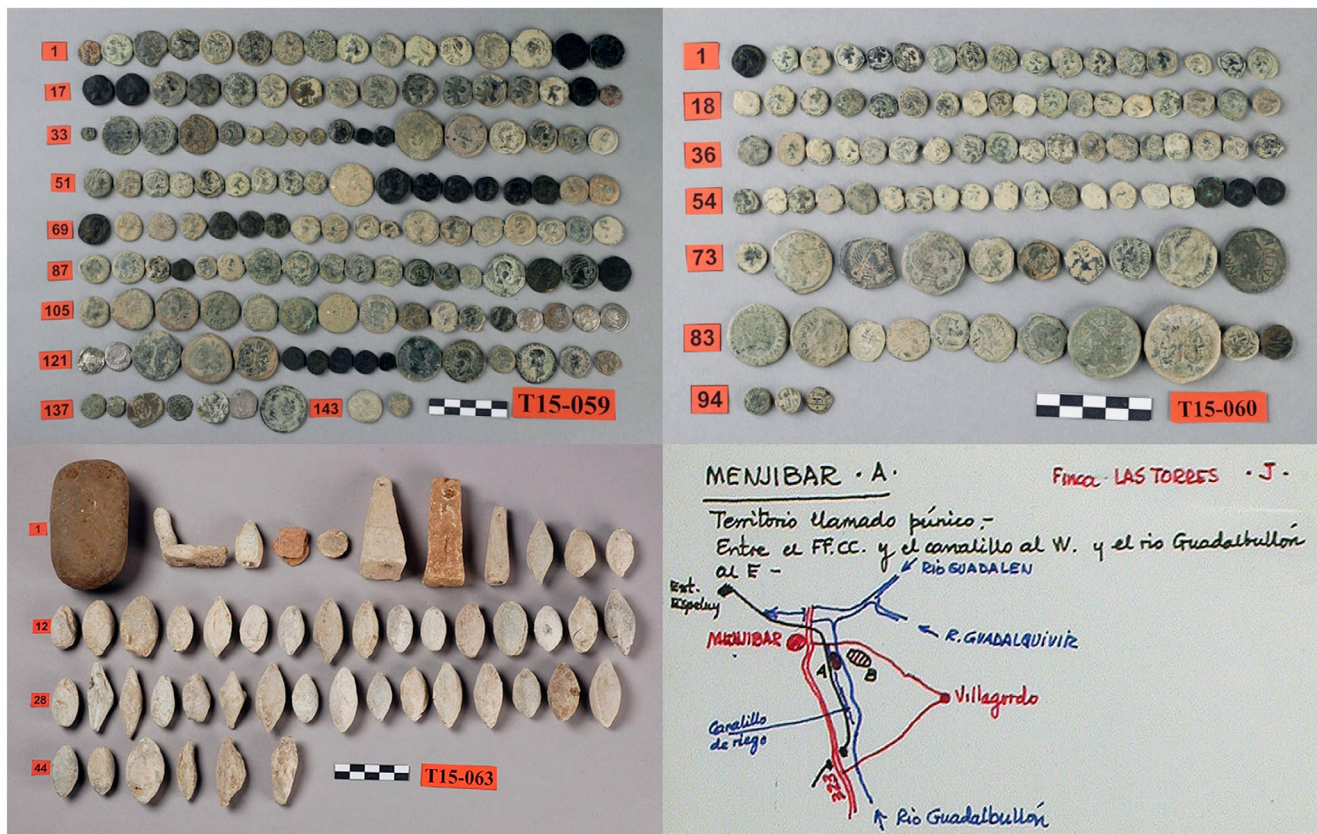


Figure 12. Composition of RMMAC Lots T15-059, T15-060 and T15-063 (Andalusian Regional Government). The original sketch drawn by the plunderers that accompanied the description of the lots; it names the zone as 'Territory called Punic'.

(10), projectiles (almost 30 lead sling bullets, 35 iron darts or *sagittae*, 5 bronze and iron arrowheads, 6 *pila catapultaria*), fragments of heavy weapons such as javelins or *pila* and the remains of Roman army *impedimenta*. In the last of these, the new abundant elements are the *caligae* hobnails, almost fifty of which have been found. Once again, as in the case of Cerro de las Albahacas-Baecula, we can attest the intentional bias presented by the finds in the lots from that site. They contain no iron objects (possibly because the plunderers set their metal detectors to ignore that metal). As at Cerro de las Albahacas, the typological variety of the finds from our research project contrasts with the homogeneity of the lots, which consist exclusively of bronze coins and lead projectiles. In fact, along with the *militaria* documented during our research at Cerro de la Muela, we have been able to identify a huge number of metal finds linked to the Iberian habitat. Of particular note among them are the numerous quadrangular-shaped forged iron nails, the remains of iron and bronze slag from the metallurgical activities undertaken during the occupation phase of the *oppidum*, and lead weights used on the river fishing nets during the protohistoric period. Such finds have no economic value on the plunderers' black market and are therefore normally rejected and not included in the lots they compile, thus eliminating the majority of the finds that make up the archaeological record of this area.

We have even been able to identify some lots in the RMMAC, in this case from the necropolis of Los Chorrillos, that were put together on the basis of the good state of preservation of the pieces, rather than on them having the same origin. This is the case of Lot T18-006 (fig. 13), which is comprised of three pottery vessels that are presented as having come from the same tomb. While there is a certain chronological coherence between two of the pieces (a Toya-type vessel and a globular urn decorated with red stripes that could be dated *a grosso modo* to between the 6th and 5th centuries BCE), the third piece is a small thin-walled vessel with a dating of between the 1st century BCE and the 1st century CE. Therefore, we can see that when making up this type of lot, the plunderers were less interested in respecting the origin of the objects than in putting together assemblages of finds in good condition, regardless of their true origin.

As we were able to corroborate with the analyses of the lots of finds from Mengíbar, in addition to their archaeological decontextualisation, we have to add a series of biases and conditioning factors in the collection and selection of the finds in these assemblages that make the information they contribute of very little use. Only in the specific case of certain finds, such as the coins (very attractive for the illegal antiquities market), can they provide specific information about their origin and typology. In the case of



Figure 13. RMMAC Lot T18-006 (Andalusian Regional Government) consisting of two urns (6th-5th centuries BCE) and a thin-walled bowl (1st century BCE-1st century CE).

the Hispano-Carthaginian coins, which are normally linked to the Second Punic War; their presence in certain areas can be indicative of encampment or conflict sites related to this late-3rd-century-BCE context. For example, Lot B02-010, associated with the toponym “Puente Mocho” in the area of the River Guadalbullón, some 10 km to the south of Cerro Maquiz, consists of a total of 40 coins, 39 of them Hispano-Carthaginian, all bronze divisors, to which we have to add ten similar coins included in another two lots with the same origin.

In summary, we can enumerate a series of conclusions deriving from this section, which demonstrates the loss of information resulting from the illicit and moreover very incoherent practice of regrouping them in private collections that, in the processing of their legalisation, are reintegrated into circuits that allow them to be accessed for academic research.

1. There is a selection or discrimination in the clandestine practice: on the one hand, the preference for “precious” metals (e.g. gold, silver or bronze) compared to the scarcity of iron or lead items. These last two are normally limited to well-defined elements of armament (spears, arrows, sling bullets, etc.). The second kind of discrimination or

selection is typological. Compared to isolated or individualised items, which are noteworthy for their market value, the dominant finds are coins and *militaria*, but also in restricted types, as we have demonstrated above. Or at least it is those that come to the surface when large clandestine collections emerge.

2. The coins included in fictitious lots can be interpreted as hoards or hidden valuables explained by unstable situations such as wars. An example of this is the lots of Hispano-Carthaginian coins. In a paradigmatic study, F. Chaves (1990) compiled a series of ‘hoards’ of Hispano-Carthaginian coins that looked more like the accumulation in lots of coins collected from battlefields than hoards concealed together. We now believe that the information was based on the then secret Marsal Collection. Indeed, both those recognised in this study as coming from Turruñuelos-Teatinos, in the proximity of the Cerro de las Albahacas-*Baecula* battlefield, and the non-existent *Necrópolis púnica* of Cerro de la Muela-*Iliturgi*, demonstrate this aspect.
3. Obviously, the illegal collection of artefacts using metal detectors corresponds to different interests, ranging from simple curiosity, a personal hobby,

to defending the local heritage by plundering it before plunderers from elsewhere get to it. This establishes a whole constellation from the extreme of irresponsible and merely personal plundering (it would not be viable to make a quantitative and qualitative estimate of the number of small hidden and inaccessible collections that are unconfessed and unconfessable) to the 'professional' organised plunderer, who knows the market, keeps their distance from the law and acts as an intermediary or recruiter for other clandestine operators. In general, both these groups place more value on aesthetic and mercantile questions than on archaeological information, which is the true value of these finds that they tend to ignore or restrict, always in the interest of the market value in the most despicable type of antiquities collecting.

The common and the invisible: the incorporation of the metal detector into rescue archaeology. From a farm or an Iberian plains site to a sanctuary: El Haza del Rayo

Another analytical case confronts us with diverse situations from the point of view of management and the measures that need to be put into practice in rescue archaeology. Thus, El Haza del Rayo (Sabiote, Jaén) is an exceptional example of the need to incorporate evaluation tools, such as metal detectors, in the preventive actions envisaged under the current legislation. The background to this archaeological site can be found in the assessment and diagnostic work linked to the construction of the Linares-Albacete dual carriageway (A-32). The surface archaeological signs were limited to a few sherds of Iberian pottery of very specific typologies, basically small, clear ware plates corresponding to known 4th-3rd century BCE types. This led the archaeologist monitoring the construction work to identify an Iberian-period site, specifying its demarcation as the western half of the hillock that defines this enclave. Beyond these indications it was not possible to define any functional aspects. The absence of any sequence or structures and the limitations of the surface record, together with the inherent dynamic of monitoring a construction project, conditioned the categorisation of this site, although we well remember its attribution as an 'unfortified Iberian plains settlement', one of the known categories of Iberian archaeological sites at the time.

With the construction still ongoing the site was subjected to considerable plundering linked to the finds of bronze ex-votos. These indications were supported by stories transmitted orally and the known sale of a lot of ex-votos, verifying the originality of the pieces (unpublished until then) and confirming that they were examples belonging to the toreutics of the Alto Guadalquivir and were in an excellent state of preservation. After the plundering had been reported to the authorities and the compulsory application had been made by the Institute of Iberian Archaeology of the University of Jaén for permission

to undertake a rescue excavation, we made a series of programmed visits to the zone. We found considerable evidence of plundering with metal detectors (more than 50 small pits), as well as a much larger test trench. This was the starting point for planning a comprehensive study of what appeared to be a 3rd-century-BCE Oretani worship site.

An example of multidisciplinary methods for the analysis of an Iberian sanctuary

The strategic situation of El Haza del Rayo, at a key connecting point between the Guadalquivir and Guadalimar valleys, and the association with such a specific archaeological record as the bronze ex-votos, placed us in an unprecedented situation from various points of view:

- In first place we found ourselves faced with a new sanctuary that enriched the known panorama of the Alto Guadalquivir that until then had been centred on the two large sanctuaries of Collado de los Jardines (Santa Elena, Jaén) and La Cueva de la Lobera (Castellar, Jaén).
- It provided an exceptional opportunity because it was the first time we had been able to employ a wide range of analytical methodologies in the study of a site of this type. Among other aspects, we were able to approach aspects of the spatial and stratigraphic association of the bronze ex-votos, particularly as the finds were almost completely decontextualised.³

For that reason, we paid special attention to configuring a strategy that included different analytical phases on diverse levels that can be summarised in the following scheme (fig. 14).

The metal detector was fundamental as an evaluation tool in the actions undertaken at El Haza del Rayo, mainly in the archaeological surface sampling and the supervision of earth movements. The lack of structures associated with the functioning of this site, as well as a definable stratigraphy (as ascertained from the various test trenches dug), caused us to prioritise the find distribution spatial analysis. To do this we carried out a systematic microspatial analysis based principally on metal detector use (due to the nature of the main finds) and high-precision GPS georeferencing. As a result, the archaeological record followed a similar pattern to other prior studies in terms of the functioning of the method, basically when applied to conflict contexts (Bellón *et al.* 2015a). Nevertheless, this scheme turned out to be valid when applied to this new context. Thus, the coordinated analysis of the different teams was organised:

- Detection: the tasks were undertaken at all times with a technical team that allowed the simultaneous use of at least three metal detectors. The team focused on defined sectors, demarcating transects

3. Linked to the historiography of these finds in the Alto Guadalquivir and their association with two sites that were heavily plundered from the early 20th century. Cf. Nicolini 1969; Prados 1992; Rueda 2011; Bellón 2012; Prados *et al.* 2018; Bellón 2018, among others.

- Surface archaeological microprospection	- Archaeological excavation
-Magnetic prospecting with 3D geo-radar	- Photogrammetric analysis
- Stratigraphic study of the wetland	- Metallographic analysis
- Analysis of phytoliths on sediment samples	- Pollen analysis
- High resolution geoarchaeological study	- ODSL dating



Figure 14. The methodological scheme developed in the archaeological investigation of the site of El Haza del Rayo (Sabiote, Jaén).

that served as a guide. They sampled 100% of the area and were able to spatially delimit the dimensions of the archaeological site. They also sampled the dismantling of infrastructures and the levelling of the existing ground, as well as exhaustively monitoring the earth movements.

- Recording team: they combined the documentation of the metallic finds with the record of other surface finds, such as pottery, to provide a complex map of interaction between votive categories that has contributed to defining this worship site.

It should be emphasised that the combined use of diverse and complementary techniques, such as micromagnetic prospection and the drawing up of a specific cartography using a drone and LIDAR (UAV) sensors,⁴ has ensured an exhaustive record. The preparation of a specific GIS for this site allowed us to generate comprehensive, readily understood documentation that is highly versatile and easily transferable (fig. 15). This GIS shows us aspects related to the rituality undertaken at the worship site, together with its spatial and material manifestation. It facilitated a rapid, georeferenced management of the data, at the same time as allowing the incorporation of new results and modifications to the established fields and types, and even its extension to other zones with similar characteristics. In this way, there are enormous possibilities in the way we can use the data, from the analysis of simple dispersion maps

to the inclusion of specific and combined types of find. From these we can extract the study of specific votive categories, a gender analysis manifested in the votive finds, etc. On the other hand, future analytical routes could include the study of ritual mobility (on a micro and a macro scale), making this analytical base a fundamental resource.

All the results have been used to generate a comprehensive map of the dynamics of a very particular site that is characterised by an archaeological record based fundamentally on bronze ex-votos and miniatures of metal items, all finds recognisable from the general record of Iberian sanctuaries in the Alto Guadalquivir. We documented a large assemblage of bronze ex-votos (almost 50), together with other votive objects, such as fibulas and decorated plaques. Despite the prior alterations, we were able to attest a regularity in the distribution of the finds, which were focused on the eastern zone. As we would see following the analysis, this spatiality was indicated by a marker: the presence of a palaeo-palustrine zone around which the offerings were distributed in a regular fashion. Use of the metal detector was also fundamental in the analysis of this area, as we were able to determine the absence of finds in its interior. With the mechanical levelling we were able to corroborate the lack of finds in the sequence associated with this sector. This was a determining factor for our understanding of the functional areas within a site and a ritual practice strongly connected to the natural environment, readings that distance us from the excessively positivist perspective that has characterised the study of the Iberian society worship sites.

4. Carried out by the Department of Cartographic Engineering, Geodesics and Photogrammetry of the University of Jaén.

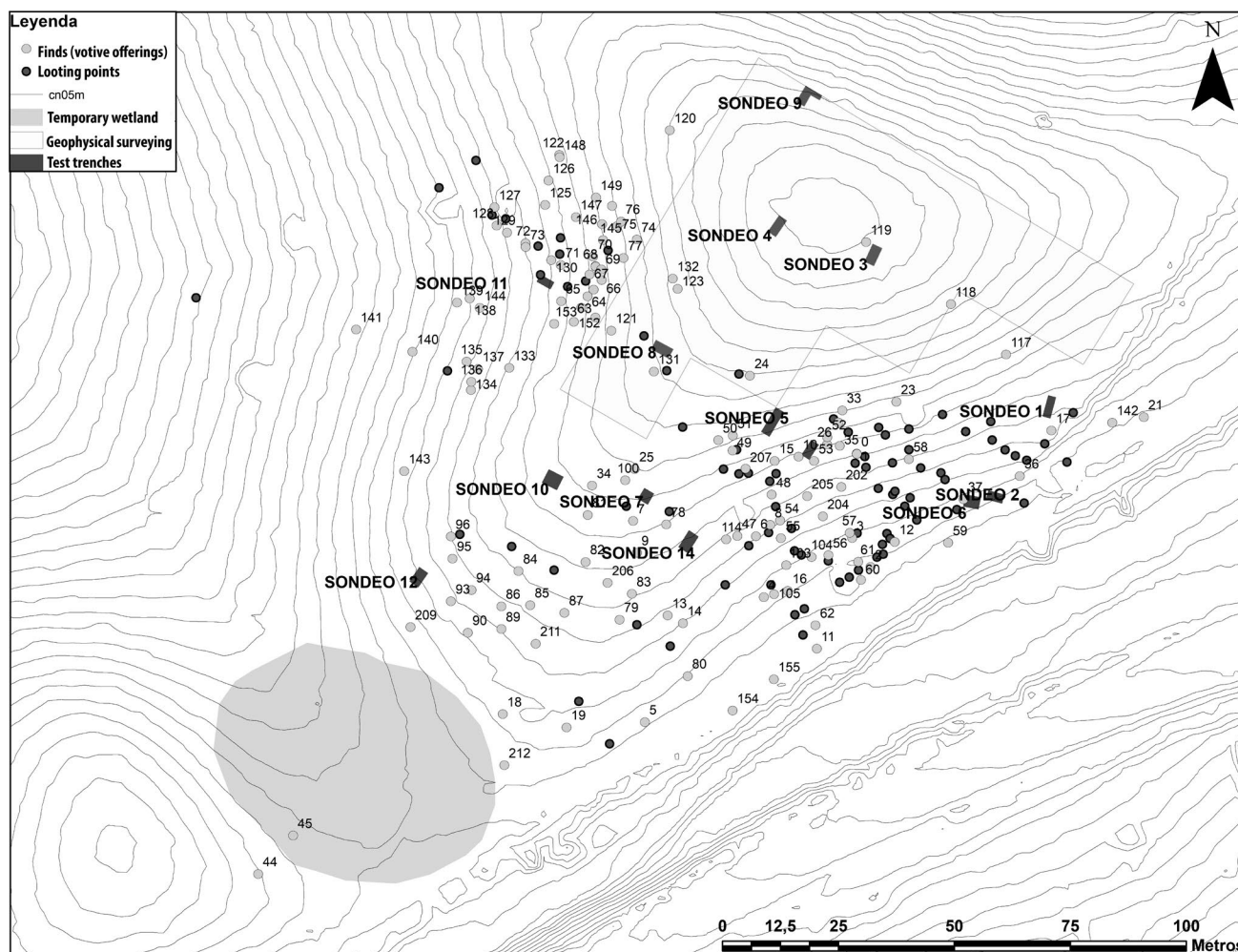


Figure 15. Dispersion of finds from the metal detector microsurvey of the Iberian sanctuary of El Haza del Rayo (Sabiote, Jaén). Geophysical surveying zone and test trenches.

Religious landscapes: method and interpretative debate

The intervention at the sanctuary of El Haza del Rayo, which has a proposed dating of the 3rd century BCE, was a major turning point in our understanding of this territorial model. The other two known sanctuaries, Castellar and Despeñaperros, had been the subject of isolated excavations in the early 20th century and during the 1980s and both sites have suffered hugely from plundering. This meant that the identification and analysis of the new sanctuary offered an exceptional research opportunity. The location of the site on the dividing line between the waters of La Loma de Úbeda corresponds to a very interesting pattern for a worship site of these characteristics. It is a strategic point of connection between the Guadalimar and Guadalquivir valleys, with extensive visibility over what would have been key areas in the territory during that era, such as the sanctuary of Castellar or *Baecula*.

In terms of the type of worship at them, these three sanctuaries (Castellar, Despeñaperros and El Haza del Rayo) all share a feature that is projected directly into the votive context: the bronze ex-votos that

are defined as self-defining elements, explained from within the frontiers and possessing a strong symbolic meaning as active elements and the protagonists of fundamental rituals for the communities (rites of passage, marriage rites, rites of protection, fertility, etc.) (Rueda 2008; 2013). Nevertheless, there are clear differences in terms of location and organisation that tell us of the existence of a wider typology of sanctuaries than those known to date and that would have had a similar votive record. The studies carried out at El Haza del Rayo corroborate the absence of built structures or topographic and natural landmarks, such as the cave and the rock shelter that define the two large territorial sanctuaries of Collado de los Jardines and La Cueva de la Lobera (Rueda and Bellón 2016). This new factor reveals a different type of sanctuary that serves to enrich the traditional readings of this territory and opens up new paths of research into the heterogeneity of sacred landscapes in the Iberian period (Grau and Rueda 2018). This site appears to correspond to a new configuration that could be interpreted as the sacralisation of a pass situated on the dividing line between the waters of La Loma de Úbeda. This new form of 'sacred place' shows us that religious landscapes were varied and heterogeneous

and that the models we have built to date merit some reflection from diverse perspectives, as well as from the methodological point of view. On the other hand, this new find goes in some way to completing the records in which bronze ex-votos are found as offerings and iconographic protagonists in this territory. These are contexts in which in some cases a horizontal record is more important, one that is not associated with a definable stratigraphy, meaning that it is essential to incorporate new analysis and recording methods. The metal detector has been key in this context by effectively documenting and cross-linking records of different types from the surface reading. Indeed, the nature of this site makes any other type of approach unviable, meaning it is an essential tool for defining this type of religious landscape.

The tasks undertaken at El Haza del Rayo have added to the debate regarding the need to incorporate this type of tool into rescue archaeology or the archaeological monitoring of public works projects, which would have been a way of preventing the destruction of part of the record associated with this worship site. The debate over the use of the metal detector should include proposals that go beyond its use in research projects, creating protocols to be implemented in the different modalities of archaeological activity.

An unresolved question without clear international references

In a recent Anglo-Saxon precis of metal detector use in all its derived forms, both social and those related to the protection of archaeological heritage (Thomas and Stone 2008), emphasis was placed on its central role in different situations. In summary, the legislation in different countries has demonstrated a dystopic relationship in the majority of cases when compared to the British situation, in which neoliberalism appears to prevail even in archaeological stratigraphy. This is precisely what is shown in the aforementioned monograph, which cites the problems of this tradition of indiscriminate use (although controlled in protected zones).

Our experience in Italy, in the cases of *Numistro* (Bellón 2012) and currently in *Metauro*, shows how the management in that country is contradictory and left up to each local or regional *soprintendenza* to decide whether or not to authorise its use. In contrast, we have also been able to attest how in Spain—in both Andalusia and Catalonia (Noguera *et al.* 2014; 2015)—its use is accepted and has been integrated with normality. At least in our case, we have seen that there is a deontological conviction on the part of the authorities of the need for its use in a comprehensive and controlled methodological framework. In other cases, such as Castilla-La Mancha, we begin to see some initial experiences, linked in this case to mediaeval-period battlefields (Montiel, Alarcos, etc.). This is in contrast to Galicia, where researchers are crying out for publications of this type to draw the attention of their respective heads of department to a

notable reticence to accept the use of metal detectors on the part of qualified professionals.

Whereas in the British case, the open, liberal use of the metal detector has led to excess and a lack of public control, in our case, we have seen an internal battle of a self-defining nature. On a local level, the possession and illicit collecting of antiquities has been defended in the face of clandestine plunderers from elsewhere, who are supposedly well organised and lacking in any sensitivity towards the local heritage.

What is the coherence or reliability of a decontextualised find? What justifies its exhibition in a display case? What is its context? As we have attempted to expose throughout this paper, institutionalised collections (e.g. the RMMAC) offer profoundly biased information—where they offer any—and it will be the controlled, regulated and professionalised use of the metal detector by archaeologists that will allow and help us to learn about the configuration of such unusual contexts as those described here (battlefields, sieges, sanctuaries, etc.). A paradigmatic case in this respect is that of *Baecula*, which has helped us understand the superficial scale of a Second Punic War conflict context and has provided us with a *corpus* of finds that, in its heterogeneity and quantitative and qualitative features, defines this type of site. There is a well-known controversy (based on self-identity and is only reasonable in that respect) that has arisen with the locality of Bailén, due to the fact that prestigious scholars (Schulten) deemed it to be the site of the Battle of *Baecula*, although without any archaeological evidence to back up such a theory. Without citing any sources, we see how attempts are being made to reconstruct or reinvent this hypothesis using finds with no confirmed origin and lacking any legal framework recognised by a competent authority. Once again, it would be necessary to have examples of all the types of finds located at Santo Tomé and in eloquent amounts (in addition to an official research project) to be able to call for a valid debate with respect to our hypothesis.

In both research projects and controlled activities (preventive, urgent, rescue, etc.) that have been recognised and validated by the administrative department responsible for the custody of archaeological heritage, the use of the metal detector is justified, providing it is part of an organised broad-based methodology in which it functions as another tool at the service of the professional scientists operating it. The detector destroys no more than the excavation itself and the record it documents is as valid as that resulting from a more detailed excavation.

Another question is the reinsertion of amateur detectorists. We are not so sure about this. From our point of view, their integration into working teams poses certain problems. This is because we are not talking about covering a larger area (constant control by archaeologists is necessary in this case) or satisfying a hobby and replacing metal-detector-dependence as a hobby closely linked to the idea of positivist archaeology that focuses on the exceptional,

spectacular find, etc. It is, in any case, a problem of reliability, of professional ethics, of avoiding a process in which the justification of the tool is confused with the justification of the person who undertakes illegal or clandestine activities.

Juan Pedro Bellón Ruiz
Carmen Rueda Galán
Miguel A. Lechuga Chica
Arturo Ruiz Rodríguez
Manuel Molinos Molinos
María Isabel Moreno Padilla

All the authors are linked to the University Research Institute for Iberian Archaeology of the University of Jaén, Campus de las Lagunillas, s/n. 23071 Jaén. jbellon@ujaen.es

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